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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,273	03/23/2004	Horst Flechtner	080437.52816US	1868

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CROWELL & MORING LLP  
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EXAMINER

TO, TUAN C

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/806,273

Applicant(s)

FLECHTNER ET AL.

Examiner

Tuan C. To

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

The proposed drawings filed on 09/26/2005 is objected because it fails to comply 37 CFR 1.84 (g) since the left and right margin are not acceptable.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 1-6, 8, 12, 14-19, 21, 22, 24, 28, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leimbach et al. (US 6314383B1) and in view of Lalor et al. (US 6332354B1).

With respect to claims 1, 8, and 24, Leimbach et al. disclose a system and method for determining a vehicle mass while taking different driving situations into consideration. It is true because in Leimbach et al. the mass value of the vehicle is determined either when the vehicle is traveling on a roadway slope or when the vehicle is traveling on a street level (Leimbach et al., column 4, lines 16-34). The evaluation of a vehicle acceleration is also discussed in the patent (column 3, lines 31-51). Thus, the teachings of Leimbach et al. read on the limitation: "a method for determining the mass of a motor vehicle while taking different driving situations into consideration, involving an evaluation of a vehicle acceleration". In addition, in column 3, lines 31-51, Leimbach et al. further describe the determination of mass  $M_{ges}$  for a vehicle acceleration  $a_{Fhzg}$  as the following:

$$M_{ges} * a_{Fhzg} = F_{antr} - F_{Roll} - F_{Luft} - F_{Hang} - F_{Rot}, \text{ which reads on the limitation:}$$

"wherein a part from a driving force of a vehicle drive unit, resistance forces resulting from rotational forces, air resistance, rolling resistance and the slope descending force are taken into consideration".

Although Leimbach et al. teach a braking system to receive the command signal from the brake system controller (102) (see figure 1), Leimbach do not disclose: "a braking force is also taken into consideration".

Lalor et al. is directed to a system and method for determining the effectiveness of a braking system and for measuring changes in the mass of a motor vehicle. In Lalor et al., the braking force is considered as it is  $F = M * D$ , wherein M is the actual vehicle mass, D is deceleration rate (Lalor et al, column 9, lines 1-15).

Hence it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Leimbach et al. to include the teachings of braking force as represented in Lalor et al.'s in order to provide vehicle safety while vehicle is traveling on a typical roadway that has a specific coefficient friction.

With regard to claims 2 and 17, Leimbach et al. teach that at least two driving situations are considered, one is when the vehicle is traveling on a roadway slope, and one when the vehicle is traveling on a street level (Leimbach et al., column 4, lines 16-34). In figure 3, it is shown both curves a and b represent the function of the estimated mass  $M_i$  with respect to the drive force  $F_{antri}$ . Thus, the teachings of Leimbach et al read on the limitation: "individual mass evaluation results from each of the plurality of driving situation evaluations are stored, and the stored individual mass evaluation results are combined into a collective mass value".

With regard to claims 3 and 18, Leimbach et al. disclose the limitation: "when determining the collective mass value, different driving situations are weighted differently (Leimbach et al., figure 3; column 4, lines 27-34).

With regard to claims 4-6, 19, 21, and 22, Leimbach et al. disclose the limitation: "for taking the slope descending force into consideration, a roadway inclination is

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determined by determining, by means of at least one longitudinal acceleration sensor installed in the vehicle, an acceleration occurring in the horizontal direction and by relating it to the acceleration occurring in the roadway direction (Leimbach et al, column 3, lines 45-51; column 4, lines 27-34).

With regard to claims 12 and 28, Lalor et al. teach that the braking force is determined from the actual vehicle mass and the deceleration rate. Therefore, Lalor et al. is inherently disclose that the braking force is distributed on the vehicle wheels on a specific path is not the same.

With respect to claim 16, Leimbach et al. disclose a system and method for determining a vehicle mass while taking different driving situations into consideration. It is true because the mass value of the vehicle, as discussed herein, is determined either when the vehicle is traveling on a roadway slope or when the vehicle is traveling on a street level (Leimbach et al., column 4, lines 16-34). The evaluation of a vehicle acceleration is also discussed in the patent (column 3, lines 31-51). Thus, the teachings of Leimbach et al. read on the limitation: "a method for determining the mass of a motor vehicle while taking different driving situations into consideration, involving an evaluation of a vehicle acceleration". Furthermore, in column 3, lines 31-51, Leimbach et al. further teach that the determination of mass  $M_{ges}$  for a vehicle acceleration  $a_{Fhzg}$  as the following:

$$M_{ges} * a_{Fhzg} = F_{antr} - F_{Roll} - F_{Luft} - F_{Hang} - F_{Rot}, \text{ which reads on the limitation:}$$

"wherein a part from a driving force of a vehicle drive unit, resistance forces resulting

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from rotational forces, air resistance, rolling resistance and the slope descending force are taken into consideration”.

Although Leimbach et al. teach a braking system to receive the command signal from the brake system controller (102) (see figure 1), Leimbach do not disclose: “a braking force is also taken into consideration”.

Lalor et al. is directed to a system and method for determining the effectiveness of a braking system and for measuring changes in the mass of a motor vehicle. In Lalor et al., the braking force is considered as it is  $F = M * D$ , wherein M is the actual vehicle mass, D is deceleration rate (Lalor et al, column 9, lines 1-15).

Hence it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Leimbach et al. to include the teachings of braking force as represented in Lalor et al.’s in order to provide vehicle safety while vehicle is traveling on a typical roadway that has a specific coefficient friction.

With regard to claims 14 and 30, Leimbach et al. teach that the detectable offsets in vehicle acceleration and driving force are corrected via the comparison of those to a predetermined threshold (Leimbach et al., column 4, lines 52-60).

With regard to claims 15 and 31, Leimbach et al. teach “plausibility controls are provided” (see Leimbach et al., column 3, lines 53-59).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leimbach et al. (US 6314383B1), Lalor et al. (US 6332354B1), and further in view of Zhu et al. (US 6438510B2).

Neither Leimbach et al. nor Lalor et al. are addressing the limitation “the component of the acceleration in the roadway direction normal to a gravity direction is determined from a satellite-based navigation system”. The U.S. reference to Zhu et al. has been cited to overcome the missing feature from Leimbach et al. and Lalor et al. by teaching a system/method estimating vehicle mass, wherein the component of the acceleration, which is the vehicle speed, is determined from a satellite-based navigation system (see Zhu et al., column 4, lines 49-51).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Leimbach et al., Lalor et al to include the teachings as taught by Zhu et al. to gain advantage therefore (i.e., the vehicle mass is accurately determined as important as the vehicle safety system and are in account).

Claims 7 and 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leimbach et al. (US 6314383B1), Lalor et al. (US 6332354B1), and further in view of Weiberle et al. (US 6374171B2).

Leimbach et al. and Lalor et al. teach the limitations of claims 4 and 19 except for the limitation: “ a vehicle body pitch angle is taken into consideration”.

The U. S Patent No. '171B2 to Weiberle et al. has been provided as teaching “vehicle body pitch angle is taken into consideration” as claimed (see figure 2; column 3, lines 17-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Leimbach et al., Lalor et al., and



Weiberle et al. so that the vehicle braking force is properly adjusted to keep the vehicle in a stable condition, specifically when the vehicle is moving uphill or down hill.

Claims 9 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leimbach et al. (US 6314383B1), Lalor et al. (US 6332354B1), and further in view of Deml et al. (US 6059379A).

The combination of Leimbach et al. and Lalor et al. discloses the limitation of claims 8 and 24 except for the teaching: "the braking fore is determined from a braking pressure and an estimated coefficient of friction between a brake lining and a brake disc."

The U.S Patent No. '379A to Deml et al. has been cited as disclosing the limitation as stated above (Deml et al., column 3, lines 9-24).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the teachings of braking force, as clearly explained in Deml et al. patent, to the teachings of braking force disclosed in Leimbach et al., Lalor et al. so that the braking force applied to each wheel is automatically adjust to keep the vehicle in a stable condition.

Claims 10 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leimbach et al. (US 6314383B1), Lalor et al. (US 6332354B1), and further in view of Yasui et al. (US 20020008423A1).

Leimbach et al. and Lalor et al. disclose the limitations of claims 8 and 24 except for the teachings of: "only braking operations without notable slippage between tires and roadway are taken into consideration".

Yasui et al. has been cited as teaching a vehicle system, in which the braking operation is taken into consideration. The slippage is prevented while the braking force is distributed to each wheel of a vehicle (Yasui et al., paragraph 0034).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Leimbach et al., Lalor et al., and Yasui et al. so that the vehicle is maintained in a stable condition whether it travel on a slippage surface or not.

Claims 11 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leimbach et al. (US 6314383B1), Lalor et al. (US 6332354B1), Deml et al. (US 6059379A), and further in view of Yasui et al. (US 20020008423A1).

Leimbach et al., Lalor et al., and Deml et al. disclose the limitations of claims 9 and 25 except for the teachings of: "only braking operations without notable slippage between tires and roadway are taken into consideration".

Yasui et al. has been cited as teaching a vehicle system, in which the braking operation is taken into consideration. The slippage is prevented while the braking force is distributed to each wheel of a vehicle (Yasui et al., paragraph 0034).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Leimbach et al., Lalor et al., and Yasui et al. so that the vehicle is maintained in a stable condition whether it travels on a slippage surface or not.

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Claims 13 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leimbach et al. (US 6314383B1), Lalor et al. (US 6332354B1), and further in view of Heintz et al. (US 5485381A).

Leimbach et al. and Lalor et al., as a combination, disclose the limitation of claims 4 and 16 except for the teaching: "at least one of the roadway inclination and the path traveled during a braking operation is determined from a vehicle navigational system".

Heintz et al. has been cited to overcome the missing feature from said combination (Heintz et al., column 2, lines 30-54).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Leimbach et al., Lalor et al., and Heintz et al. so that the vehicle speed limit or braking operation is controlled appropriately in according to the road surface of a specific road that has been stored in the geographic database of the vehicle navigation system.

### ***Response to Arguments***

Applicant's arguments with respect to claim 20 have been considered but are moot in view of the new ground(s) of rejection.

Claims 14, 15, 30, and 31 rejectable under 35 U.S.C 112 (secondary paragraph) are now withdrawn. However, said claims are still rejected based on the reference of Leimbach et al as set forth in this office action.

The applicants argue that Leimbach et al. either alone or in combination, fail to teach or suggest all the features of the present invention in independent claims 1 and

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16. It is not persuasive since the entire system/method of Leimbach is provided for determining a vehicle mass (see Leimbach et al., title, abstract) while different driving situation are taken into consideration. In addition, the evaluation of vehicle acceleration, driving force, resistance forces, air resistance, rolling resistance, and the slope descending force are involved. As clearly interpreted herein above, the reference of Leimbach et al. as being combined with another cited reference to address all features of the claims.

### ***Conclusions***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan C To whose telephone number is (571) 272-6985. The examiner can normally be reached on from 8:00AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

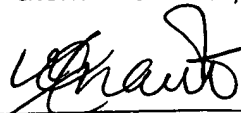
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Patent Examiner,

A handwritten signature in black ink, appearing to read 'Tuan C To', written over a horizontal line.

Tuan C To

December 08, 2005